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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|---|---|---|---|
| 09/274,152 | 03/22/99 | MCVEIGH J | 42390.P7110 |

TM01/0821

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| EXAMINER | |
|---|---|
| VO,T | |
| ART UNIT | PAPER NUMBER |
| 2613 | 18 |

DATE MAILED: 08/21/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

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| Office Action Summary | Application No. 09/274,152 | Applicant(s) MCVEIGH ET AL. | |
|---|---|---|---|
| | Examiner Tung T. Vo | Art Unit 2613 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *07 August 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

1. The request filed on 08/07/01ontinued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/274,152 acceptable and a CPA has been established. An action on the CPA follows.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Igarashi et al. (US 5,666,461).

Re claim 12, Igarashi teaches an apparatus for encoding and decoding a video stream as shown in figures 3-8, where the apparatus comprises a motion estimation as motion detection (21 and 22 of figs. 3 and 4) to receive a video stream of data comprising at least an anchor frame (reference frame/image/picture) from the input and predicted frame from the motion compensation (20 and 20' of fig. 3 and 4), the motion estimation is to utilize even-parity field prediction as shown in figures 5-8 to predict content of an even-field (EVEN of fig. 7), and odd field (ODD of fig. 7). Igarashi teaches various types of motion vectors used in the encoding and

decoding apparatus field based motion prediction, the vector SMVI prediction, the vector MVoPo prediction (col. 9), where the motion estimation performs predicting content of an even-field of predicted frame from an odd-field of the anchor picture as the reference picture (col. 9, lines 24-51), particularly the vector MvoPe indicates prediction from an odd field of a reference picture to an even-field of a P picture, and the vector MVePo indicates prediction from an even field of a) reference picture (anchor frame) to an odd filed of a P picture (predicted picture), and motion estimation further performs predicting an odd-field of the predicted frame from even-field of the reference picture (col. 9, lines 51-65), where the frame/picture-based prediction of each macro-block is performed in detail as illustrated in figures 18A and 18B.

Re claims 13-17, Igarashi teaches where the anchor frame used either precede or supersede predicted frame (P or B) depending on predicted frame type (TABLES 1-4), the motion estimation circuit measures activity within each of the plurality of fields of the anchor frame to generate a corresponding plurality motion vectors, and predicts content of a first in the predicted frame from content of a corresponding first field in the anchor frame, and a first field motion vector, and predicts contend of a second field in the predicted frame from corresponding second field and a second field motion vector performed by frame and field motion detection (21 and 22 of figures 3 and 4), where field-based and frame-based predictions as described (col. 7, lines 65 through col. 8, lines 1-15; TABLES 1-4), particularly figures 18A and 18B shows frame-based prediction of each macro-block. Igarashi further teaches the even-field interlaced video content of the predicted frame is predicted from even-from interlaced video content of the anchor frame, and odd field interlace video content of the predicted frame is predicted from odd-field interlace video content of the anchor frame (figs. 10A-10C), wherein the field motion

detection (21 of figures 3 and 4) generates a motion vector for each of a first and second field of the predicted frame by measuring a sum of absolute activity differences in corresponding first and second field of the anchor frame (col.15, lines 9-35).

Re claims 1-11 and 20-31, since Igarashi teaches the motion estimation circuit for performing field and frame predictions of odd and even field of the anchor frame as described above, so the method claims 1-11 and 20-30 that are similar to the apparatus claims 12-17 are also anticipated by Igarashi.

Re claims 18, 19, and 31, Igarashi must have a storage medium having plurality executable instructions causing the motion estimation circuit to perform field and frame predictions of odd and even field of the anchor frame as described above. See the analysis above claims 12-17.

4. Claims 1, 18, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Murakami et al. (US 5,274,442).

Re claims 1, 18, and 20, Murakami teaches a motion detecting circuit (22 of fig. 7) for predicting content of an even-field of predicted frame from an odd-field of the anchor picture as the reference picture (col. 11), and an odd-field of the predicted frame from even-field of the reference picture (col. 11), where the frame/picture-based prediction of each macro-block is performed in detail as illustrated in figure 11.

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iu (US 5,293,229) in view of Eifrig et al. (US 5,991,447) as set forth in the previous Office Action, and further in view of Murakami et al.

Re claims 1-31, the combination of Iu and Eifrig discloses the motion estimation to performs even and odd fields predictions as set forth in the previous Office Action but it fails to particularly disclose a predicting an odd-field of the predicted frame from even-field of the reference picture and predicting content of an even-field of predicted frame from an odd-field of the anchor picture as the reference picture as specified in claims 1, 18 and 20. However, Murakami does. Therefore, it would have been obvious to one skill in the art to modify the teachings of Murakami into the combination system of Iu and Eifrig for predicting motion vectors in even and odd fields using both fields, so that the motion estimation would provide high efficiency coding/encoding, and quantization accuracy is controlled.

## *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the previous Office Action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung T. Vo whose telephone number is (703) 308-5874. The examiner can normally be reached on M-F 7:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on (703) 305-4856. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Tung T. Vo
Examiner
Art Unit 2613

T.Vo
August 15, 2001

CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600